

EXHIBIT T

MAY 9 2002 5:32PM

NESS MOTLEY4TH FL

NO. 4783

P. 3/27

944325

02302816

Construction Products Division

GRACE

TO: E. S. Wood
J. W. Wolter
B. R. Williams
W. R. Hanlon
O. M. Favorito

DATE: April 7, 1977

FROM: R. C. Erickson

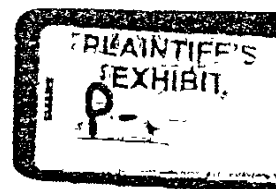
SUBJECT: 2nd Draft Proposal for
MSDS for Vermiculite
Concentrate & Finished Product

cc: W. P. McCord
H. C. Duecker
R. Locke
F. Eaton

Jack Wolter and I met today with Bruce Blessington and Bill Hanlon to develop a "sales viewpoint" on my first draft proposals of April 5th. Essentially we were selecting from among the range of options proposed and editing language to take into account potential adverse impact on the business. The result is a consensus which is attached as (5) "2nd Draft" recommendations. These are to be further reviewed at the April 8th Fiber Committee meeting.

R C Erickson
R. C. Erickson

rcs/lpj



MAY 9 2002 5:32PM

NESS MOTLEY 4TH FL

2nd DRAFT

NO. 4783 P. 4/27

ATTACHMENT A

0624326

1. LIBBY TREMOLITE STATEMENT: Contains less than 5% by weight of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

02302817

KEARNEY TREMOLITE STATEMENT: Contains less than 5% by weight of a naturally occurring mixture of amphibole contaminants; hornblende and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5% of the contaminant is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* TREMOLITE TABLE BASED ON AVAILABLE CPD TREMOLITE TEST DATA

<u>MIXES</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MONOKOTE	0.10%	.2-2.0%
ZONOLITE 3300	0.10%	.2-2.0%
REDI-EARTH	0.10%	.2-2.0%
METRO-MIX	0.10%	.2-2.0%

Per E.S. Wood, definitions above are termed "MINUTE".

<u>100% VERMICULITE PRODUCTS</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MASONRY FILL (#4 size)	xx	xx
" " (#3 size)	xx	xx
ATTIC FILL (#1 size)	unknown	not applicable
" " (#2 size)	0.1%	not applicable
" " (#3 size)	0.1%	1-6%
ZONOLITE CONCRETE AGGREGATE (#4 size)	0.5%	1-6%
TERRA-LITE GROWER (#2 size)	0.1%	not applicable
" " CONSUMER (#3 size)	0.1%	1-6%
VERXITE (#4 size)	not applicable	below detectable lim
INDUSTRIAL (#1 size)	xx	not applicable
" (#2 size)	0.1%	not applicable
" (#3 size)	0.1%	1-6%
" (#4 size)	0.5%	1-6%

<u>VERMICULITE CONCENTRATE</u>	<u>LIBBY</u>	<u>KEARNEY</u>
Size #1	1.2	not applicable
Size #2	2.5	not applicable
Size #3	xx	1-6%
Size #4	xx	1-10%
4G	xx	xx
Size #5	xx	xx

- ** The 5% statement is suggested on the basis of microscopic examination of a single Kearney sample. The 5% figure is an estimate. If we intend to use the approach we would have to generate quantitative lab data by means of linear traverse.

xx - to be determined

MAY 9, 2002 5:53PM

NESS MOTLEY 4TH FL

2nd DRAFT

NO. 4783

P. 5/274327

ATTACHMENT B

02302813

2. AIRBORNE "ASBESTOS FIBER" STATEMENT:

- 1) Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 2) The morphology of the tremolite content is predominantly platy (non-fibrous). Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 3) Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.
- 4) The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection.
- 5) The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" (less than 0.5% by weight) fraction. Normal industrial dust control practices should be followed.

RECOMMENDED FIBER STATEMENTS

<u>MIXES</u>	<u>LIBBY</u>	<u>KEARNEY</u>
HONOKOTE	1*	1
ZONOLITE 3300	1*	1
REDI-EARTH GROWER	1	1
METRO-MIX GROWER	1	1
<u>100% VERMICULITE PRODUCTS</u>		
MASONRY FILL (#4 size)	1	1
" " (#3 size)	1	1
ATTIC FILL (#1 size)	Consumer product (MSDS) not appropriate	
" " (#2 size)		
" " (#3 size)		
ZONOLITE CONCRETE AGGREGATE (#4 size)	1	1
TERRA-LITE GROWER (#2 size)	1	not applicable
TERRA-LITE CONSUMER (#3 size)	1	1
VERXITE	not applicable	below detectable 1
INDUSTRIAL (#1 size)	MSDS for industrial and uses must be specifically tailored for the particular end use practice & must be developed on the basis of customer input	
" (#2 size)		
" (#3 size)		
" (#4 size)		
BULK AGRICULTURAL VERM. #4	5 (modified)	5 (modified)
<u>VERMICULITE CONCENTRATE</u>		
Size #1	4	not applicable
Size #2	4	not applicable
Size #3	4	5
Size #4	4	5
4G	4	5
Size #5	—	5

The information contained herein is based on knowledge believed to be reliable but W. R. GRACE & CO. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO THE ACCURACY OR ADEQUACY THEREOF. Nothing herein excuses the recipient hereof from such duties as shall be imposed by the Occupational Safety and Health Act of 1970 and regulations issued pursuant thereto.

- * Blessington feels that these two products need further discussion & clarification.

MAY 9, 2002 5:33PM

NESS MOTLEY 4TH FL

DEPT

NO. 4783

P. 6/27

DATE

U.S. DEPARTMENT OF LABOR

UO24328

DATE:

Occupational Safety and Health Administration

E. S. Wood

MATERIAL SAFETY DATA SHEET

J. W. Wolter

B. R. Williams

W. R. Hanlon

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

O. M. Favorito

MANUFACTURER'S NAME W. R. GRACE & CO. - Construction Products Division		EMERGENCY TELEPHONE NO. 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code) 62 Whittemore Avenue, Cambridge, MA 02140		Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS VERMICULITE CONCENTRATE (Non-expanded) #1 & #2	TRADE NAME AND SYNONYMS Vermiculite Concentrate - Libby Mine	
CHEMICAL FAMILY Magnesium Aluminosilicate Mineral	FORMULA (Mg,Ca,K)-(Al,Fe,Hg)-(Si,Al)4(O) ₁₀ (OH) ₂ ·H ₂ O	

SECTION II - HAZARDOUS INGREDIENTS

02302510

Contains less than 1% by weight of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* #1: 1.2 #2: 2.5

The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT. VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (—=1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

(Continued on reverse side)

at the time this information was given, Form OSHA-20 Rev. May 72

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MAY 9, 2002 5:34PM - NESS MOTLEY 4TH FL, - HEALTH HAZARD D-4 NO. 4783 P. 7/27
0624329

THRESHOLD LIMIT VALUE	
Airborne asbestos fiber 2f/cc T.W.A. - ceiling 10f/cc at one time	
Dust respirable fraction 5 mgm/M ³	Total dust 15 mgm/M ³
02362420	
EMERGENCY AND FIRST AID PROCEDURES	
RA	

SECTION VI - REACTIVITY DATA			
NOT APPLICABLE			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Dampen slightly or use other techniques which control airborne fibers and dust within the TLV limits of Section V above.	
WASTE DISPOSAL METHOD	
Use disposal techniques which control airborne fibers and dust within the TLV limits of Section V above. See OSHA Standard 1910.93A.	
Paragraph (h) (2) Waste Disposal	

SECTION VIII - SPECIAL PROTECTION INFORMATION

See OSHA 1910.93A - Controls such as isolation enclosure, exhaust ventilation and dust collection shall be used to meet exposure limits. Also see OSHA Standard 1910.93A Personal Protective Equipment for dealing with work environments in excess of exposure limits.

SECTION IX - SPECIAL PRECAUTIONS
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
See OSHA Standard 1910.1001
OTHER PRECAUTIONS

PAGE 01
CPS 12-14

Form OSHA-20
Rev. May 72

MAY 9 2002 5:34PM

NESS MOTLEY 4TH FL DEPARTMENT OF LABOR

NO. 4783 P. 8/27 062433

DATE:

Occupational Safety and Health Administration

E. S. Wood

MATERIAL SAFETY DATA SHEET

J. W. Wolter

B. R. Williams

W. R. Hanlon

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

O. H. Favorito

SECTION I

MANUFACTURER'S NAME

W. R. Grace & Co. - Construction Products Division

EMERGENCY TELEPHONE NO.
617-876-1400 x 457

ADDRESS (Number, Street, City, State, and ZIP Code)

62 Whittemore Ave., Cambridge, MA 02140

Quality Assurance Manager

CHEMICAL NAME AND SYNONYMS

VERMICULITE CONCENTRATE

#3 & #4 AC

TRADE NAME AND SYNONYMS

Vermiculite Concentrate - Kearney Min

CHEMICAL FAMILY

Magnesium Aluminosilicate Mineral

FORMULA

(Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al)4(O)₂10(OH)₂C**SECTION II - HAZARDOUS INGREDIENTS**

The normal physical handling given to vermiculite concentrate can create 02302822
a nuisance dust level in excess of OSHA standards. Due to the predominantly
platy (non-fibrous) character of the tremolite contaminant, the dust has
a negligible "asbestos fiber" (~~4.1 x 10⁻⁴ by weight~~) fraction. Normal
industrial dust control practices should be followed.

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____=1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark gray		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (MATERIALS USED)	FLAMMABLE LIMITS	Let	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

(Continued on reverse side)

Form OSHA-20
Rev. May 72

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issued pursuant thereto.

MAY 9, 2002 5:34PM

NESS MOTLEY 4TH FL V - HEALTH HAZARD DATA

NO. 4783 P. 9/27

THRESHOLD LIMIT VALUE
DUST respirable fraction 5mgm/M³. Total dust 15mgm/M³. 02302802

0624331

EMERGENCY AND FIRST AID PROCEDURES

NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Dampen slightly or use other techniques which control airborne dust within the TLV limits of Section V above.

WASTE DISPOSAL METHOD

Use disposal techniques which control airborne dust within the TLV limits of Section V above.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: If TLV is exceeded, use disposable respirator Type TC-21C-132; 3M 68710 or similar disposable or reusable respirator

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

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Rev. May 92

MAY 9 2002 5:35PM

NESS MOTLEY 4TH FL U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

NO. 4783 P. 10/27 E

E. S. Wood

062

J. W. Wolter

B. R. Williams

W. R. Hanlon

O. M. Favorito

MATERIAL SAFETY DATA SHEETRequired under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I****MANUFACTURER'S NAME**

W. R. Grace & Co. - Construction Products Division

EMERGENCY TELEPHONE NO.

617-876-1400 x 457.

ADDRESS (Number, Street, City, State, and ZIP Code)
62 Whittemore Avenue, Cambridge, MA 02140**Quality Assurance Manager****CHEMICAL NAME AND SYNONYMS**

NOT APPLICABLE

TRADE NAME AND SYNONYMS

REDI-EARTH GROWER

CHEMICAL FAMILY

Peat Moss/Vermiculite Mixture

FORMULA

NOT APPLICABLE

SECTION II - HAZARDOUS INGREDIENTS

Expected end use procedures in the grower industry may create dusty conditions.
Airborne fiber levels will not exceed OSHA standards in the intended end use.

W.H.A.
OSHA
[Signature]

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____=1)	NA
SOLUBILITY IN WATER	NA	Bulk Density lbs/c.f.	8-10
APPEARANCE AND ODOR: Slightly moist brown colored free-flowing material			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	NOT APPLICABLE		
EXTINGUISHING MEDIA	FLAMMABLE LIMITS	LEL	UEL
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

(Continued on reverse side)

Form OSHA-20
Rev. May 72

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MAY 9. 2002 5:35PM NESS MOTLEY 4TH FL - HEALTH HAZARD NO. 4783 - P. 11/27333

Nuisance dust TLV = $10\text{mg}/\text{M}^3$; $5\text{mg}/\text{M}^3$ respirable

02302823

EMERGENCY AND FIRST AID PROCEDURES NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES NOT APPLICABLE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION

NOT APPLICABLE

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

SPECIAL

MECHANICAL (General)

OTHER

PROTECTIVE CLOVES

EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

NOT APPLICABLE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

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Rev. May 72

0002 5:35PM

NESS MOTLEY 4TH FL

NO. 4783 P 12/27

02302826

0624334

Construction Products Division

GRACE

TO: E. S. Wood
 J. W. Wolter
 B. R. Williams
 W. R. Hanlon
 O. M. Favorito

DATE: April 5, 1977

FROM: R. C. Ericson

SUBJECT: MSDS for Vermiculite
 Concentrate & Finished Product

cc: W. F. McCord
 H. C. Duecker
 R. Locke
 P. Eaton

With more data now available, I have drafted some proposed language for Material Safety Data Sheets. My view is that we should have an MSDS for each product in the line because this permits us to make more informative and precise statements.

The most difficult section to complete is Section II - HAZARDOUS INGREDIENTS. This will include (1) a tremolite statement and (2) an asbestos fibers statement. I am attaching proposals for a standard pattern to follow in this section with (17) distinct finished product classifications. Also attached are (3) examples of complete MSDS for Libby concentrate, Kearney concentrate, and Redi-Earth (an example of a mixed product).

I would expect that a group discussion of these proposals could permit us to develop a consensus draft so that we can respond to numerous pending requests. As a related postscript, I would like to offer my version of a "safety" statement: "We believe our product has an ((1) acceptable or (2) negligible or (3) almost non-existent) hazard at any foreseeable exposure levels in its intended end use."

R C Ericson
 R. C. Ericson

rcs/lpj
 Attachments

MAY. 9. 2002 5:36PM

NESS MOTLEY4TH FL

NO. 4783 P. 13/27

02302826

062433:

1. LIBBY TREMOLITE STATEMENT: Contains less than * % of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

KEARNEY TREMOLITE STATEMENT: Contains less than * % of a naturally occurring mixture of amphibole contaminants; Hornblende and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5% of the contaminant is in a form which can fibrillate by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* % TREMOLITE TABLE BASED ON AVAILABLE CPD TREMOLITE TEST DATA

<u>MIXES</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MONOKOTE	0.10%	.2-2.0%
ZONOLITE 3300	0.10%	.2-2.0%
REDI-EARTH	0.10%	.2-2.0%
METRO-MIX	0.10%	.2-2.0%

Per E.S. Wood, definitions above are termed "MINUTE".

<u>100% VERMICULITE PRODUCTS</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MASONRY FILL (#4 size)	xx	xx
" " (#3 size)	xx	xx
ATTIC FILL (#1 size)	unknown	not applicable
" " (#2 size)	0.1%	not applicable
" " (#3 size)	0.1%	1-6%
ZONOLITE CONCRETE AGGREGATE (#4 size)	0.5%	1-6%
TERRA-LITE GROWER (#2 size)	0.1%	not applicable
" " CONSUMER (#3 size)	0.1%	1-6%
VERXITE (#4 size)	not applicable	below detectable lim
INDUSTRIAL (#1 size)	xx	not applicable
" (#2 size)	0.1%	not applicable
" (#3 size)	0.1%	1-6%
" (#4 size)	0.5%	1-6%

<u>VERMICULITE CONCENTRATE</u>	<u>LIBBY</u>	<u>KEARNEY</u>
Size #1	1.2	not applicable
Size #2	2.5	not applicable
Size #3	xx	1-6%
Size #4	xx	1-10%
4G	xx	xx
Size #5	xx	xx

- ** The 5% statement is suggested on the basis of microscopic examination of a single Kearney sample. The 5% figure is an estimate. If we intend to use the approach we would have to generate quantitative lab data by means of linear traverse.

MAY 9 2002 5:36PM

NESS MOTLEY 4TH FL

NO. 4783 P. 14/27

0624336

02302827

2. AIRBORNE "ASBESTOS FIBER" STATEMENT:

- 1) Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 2) The morphology of the tremolite content is predominantly platy (non-fibrous). Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 3) Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.
- 4) The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection. See W. R. Grace & Co. bulletin # _____ for recommended practices.
- 5) The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" fraction. Normal industrial dust control practices should be followed.

POSSIBLE FIBER STATEMENTS

<u>MIXES</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MONOKOTE	1	1, 2
ZONOLITE 3300	1	1, 2
REDI-EARTH	1, 3	1, 2, 3
METRO-MIX	1, 3	1, 2, 3
<u>100% VERMICULITE PRODUCTS</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MASONRY FILL (#4 size)	3	1, 2
" " (#3 size)	3	1, 2
ATTIC FILL (#1 size)	unknown	
" " (#2 size)	3	
" " (#3 size)	unknown	1, 2
ZONOLITE CONCRETE AGGREGATE		
" " (#4 size)	1	1, 2
TERRA-LITE GROWER (#2 size)	1, 3	
TERRA-LITE CONSUMER (#3 size)	1	1, 2
VERXITE INDUSTRIAL (#1 size)	3	
" " (#2 size)	3	
" " (#3 size)	3	1, 2
" " (#4 size)	3	1, 2
<u>VERMICULITE CONCENTRATE</u>	<u>LIBBY</u>	<u>KEARNEY</u>
Size #1	4	not applicable
Size #2	4	not applicable
Size #3	4	5
Size #4	4	5
4C	4	5
Size #5	—	5

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MAY 9 2002 5:36PM

NESS MOTLEY 4TH FL DEPARTMENT OF LABOR

NO. 4783

P. 15/27 6243

DATE:

Occupational Safety and Health Administration

E. S. NODD

MATERIAL SAFETY DATA SHEET

J. W. Wolter

B. R. Williams

W. R. Hanlon

O. M. Favorito

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME W. R. Grace & Co. - Construction Products Division		EMERGENCY TELEPHONE NO. 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code) 62 Whittemore Avenue, Cambridge, MA 02140		
CHEMICAL NAME AND SYNONYMS VERMICULITE CONCENTRATE (Non-expanded) #1 & #2 MAGNESIUM ALUMINOSILICATE MINERAL		TRADE NAME AND SYNONYMS Vermiculite Concentrate - Libby Mine FORMULA (Mg,Ca,X)-(Al,Fe,Mg)-(Si,Al)4(O)10(OH)2-H2O

Quality Assurance Manager

SECTION II - HAZARDOUS INGREDIENTS

1. **TREMOLITE STATEMENT:** Contains less than 0.1% of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* #1: 1.2 #2: 2.5

02302828

The normal physical handling given to vermiculite concentrate can create an airbor fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection. See W. R. Grace & Co. Bulletin # for recommended practices.

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (H ₂ O=1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (MINIMUM °F)	FLAMMABLE LIMITS	NOT APPLICABLE
EXTINGUISHING MEDIA	LM	UM
SPECIAL FIRE FIGHTING PROCEDURES		
UNUSUAL FIRE AND EXPLOSION HAZARDS		

PAGE (1)

(Continued on reverse side)

Form OSHA-20
Rev. May 92

The information contained herein is based on knowledge believed to be reliable but W.R. GRACE & CO. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO THE ACCURACY OR ADEQUACY THEREOF. Nothing herein excuses the recipient hereof from such duties as shall be imposed by the Occupational Safety and Health Act of 1970 and regulations issued pursuant thereto.

MAY 9, 2002 5:37PM NESS MOTLEY 4TH FL - HEALTH HAZARD DATA NO. 4783 P. 16/27

THRESHOLD LIMIT VALUE		0624338
Airborne asbestos fiber 2f/ff T.W.A. - ceiling 10f/cc at one time		
Dust respirable fraction 5 mgm/M ³ , Total dust 15 mgm/M ³ .		02302800
EMERGENCY AND FIRST AID PROCEDURES		
NA		

SECTION VI - REACTIVITY DATA				NOT APPLICABLE
STABILITY	UNSTABLE		CONDITIONS TO AVOID	
	STABLE			
INCOMPATIBILITY (Materials to avoid)				
HAZARDOUS DECOMPOSITION PRODUCTS				
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID	
	WILL NOT OCCUR			

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Dampen slightly or use other techniques which control airborne fibers and dust within the TLV limits of Section V above.	
WASTE DISPOSAL METHOD	
Use disposal techniques which control airborne fibers and dust within the TLV limits of Section V above. See OSHA Standard 1910.93A, Paragraph (h) (2) Waste Disposal	

SECTION VIII - SPECIAL PROTECTION INFORMATION

See OSHA 1910.93A - Controls such as isolation enclosure, exhaust ventilation and dust collection shall be used to meet exposure limits. Also see OSHA Standard 1910.93A Personal Protective Equipment for dealing with work environments in excess of exposure limits.

SECTION IX - SPECIAL PRECAUTIONS
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
See OSHA standard 1910.1001
OTHER PRECAUTIONS

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Rev. May 77

MAY 9 2002 5:37PM

NESS MOTLEY 4TH FL DEPARTMENT OF LABOR

NO. 4783

P. 17/27 24339

DATE:

Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

J. W. Wolter

B. R. Williams

W. R. Earlon

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

O. M. Favorito

SECTION I**MANUFACTURER'S NAME**

W. R. Grace & Co. - Construction Products Division

EMERGENCY TELEPHONE NO.
617-876-1400 x 457**ADDRESS (Number, Street, City, State, and ZIP Code)**

62 Whittemore Ave., Cambridge, MA 02140

Quality Assurance Manager**CHEMICAL NAME AND SYNONYMS**

VERMICULITE CONCENTRATE

#3 & #4

TRADE NAME AND SYNONYMS

Vermiculite Concentrate - Kearney Min

CHEMICAL FAMILY

Magnesium Aluminosilicate Mineral

FORMULA(Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al)₄(O)₁₀(OH)₂**SECTION II - HAZARDOUS INGREDIENTS**

KEARNEY TREMOLITE STATEMENT: Contains less than * % of a naturally occurring mixture of amphibole contaminants; Hornblende and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5% of the contaminant is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

02302880

* #3: 1-6%; #4: 1-10%

The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" fraction. Normal industrial dust control practices should be followed.

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (____=1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	LM	UM
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

(Continued on reverse side)

Form OSHA-20
Rev. May 77

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MAY 9 2002 5:38PM NESS MOTLEY 4TH FL - HEALTH HAZARD DATA NO. 4783 P. 18/27

Dust respirable fraction, $\mu\text{g}/\text{M}^3$	Total dust $15\mu\text{g}/\text{M}^3$	02302551
		0624340
EMERGENCY AND FIRST AID PROCEDURES		
RA		

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Dampen slightly or use other techniques which control airborne dust within the TLV limits of Section V above.	
WASTE DISPOSAL METHOD	
Use disposal techniques which control airborne dust within the TLV limits of Section V above.	

SECTION VIII - SPECIAL PROTECTION INFORMATION
Respiratory Protection: If TLV is exceeded, use disposable respirator Type TC-21C-132, 3M 68710 or similar disposable or reusable respirator

SECTION IX - SPECIAL PRECAUTIONS
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
OTHER PRECAUTIONS

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MAY. 9. 2002 5:38PM

NESS MOTLEY 4TH FL

DEPARTMENT OF LABOR
Occupational Safety and Health Adminis. Jon

NO. 4783

P. 19/27

E. S. Wood

0624

DATE:

MATERIAL SAFETY DATA SHEET

J. W. Walter

B. R. Williams

W. R. Hanlon

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

O. M. Favorito

MANUFACTURER'S NAME

W. R. Grace & Co. - Construction Products Division

EMERGENCY TELEPHONE NO.

617-876-1400 x 457

ADDRESS (Number, Street, City, State, and ZIP Code)

62 Whittemore Avenue, Cambridge, MA 02140

Quality Assurance Manager

CHEMICAL NAME AND SYNONYMS

NOT APPLICABLE

TRADE NAME AND SYNONYMS

REDI-EARTH GROWER

CHEMICAL FAMILY

Peat Moss/Vermiculite Mixture

FORMULA

NOT APPLICABLE

SECTION II - HAZARDOUS INGREDIENTS

02302532

1. Contains less than 2.0% of a naturally occurring contaminant tremolite. The morphology of the tremolite content is predominantly platy (non-fibrous). Less than 5% of the contaminant (0.1%) is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers.
2. Airborne fiber levels will not exceed OSHA standards in the intended end use.
3. Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.

NOTE: This section could include any of the following combinations:
1 & 2 or 1 & 3 (Kearney vermiculite only)

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	NA	SPECIFIC GRAVITY (M ₂ O=1)	NA
VAPOR PRESSURE (mm Hg)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (____=1)	NA
SOLUBILITY IN WATER	NA	Bulk Density lbs/c.f.	8-10
APPEARANCE AND ODOR Slightly moist brown colored free-flowing material			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Meiqing #444)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

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(Continued on reverse side)

Form OSHA-20
Rev. May 77

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MAY 9, 2002 5:39PM

NESS MOTLEY 4TH FL - HEALTH HAZARD DATA

NO. 4783

P. 20/27

THRESHOLD LIMIT VALUE
Nuisance dust TLV = $10\text{mg}/\text{m}^3$; $5\text{mg}/\text{M}^3$ respirable

02J02870

0624342

EMERGENCY AND FIRST AID PROCEDURES

RA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS
POLYMERIZATION

MAY OCCUR

WILL NOT OCCUR

CONDITIONS TO AVOID

SECTION VII - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION

NOT APPLICABLE

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

SPECIAL

MECHANICAL (General)

OTHER

PROTECTIVE GLOVES

EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

NOT APPLICABLE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

PAGE (2)
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NO. 4783 P. 21/27
343 000028:1.1

CCM

all rally at 26
mets 4-4-77

R. C. Swiss.

CC - Wind

Re. MSSOS for Vernell
Pomeroy + Gerald Park

I have reviewed the Dept Report
for MSDs for recruitment cover letters
and final product and have the
following comments

(a) Reference to Regulation 19/0.93.
~~the same~~ should be deleted. The
for the designation given to it
to OSHA. objects standard before it
was modified. The ~~designation~~
proper designation is to 19/0.10.
and the report shall be read
throughout.

~~I ordered the~~
~~the point~~

(b) I intended that the reason
for ~~issuing~~ going to indicate
the percent ~~loss~~ by weight
of weight control is to give the
receipt ~~some knowledge regarding~~
~~that~~ the indication that
he is not giving a product containing
commercial value and that the
~~entirement~~ ~~value~~ ~~itself~~ ~~value~~

MAY. 9. 2002 5:39PM

NESS MOTLEY4TH FL

NO. 4783

P. 22/27

24344

the 'de de resolution' because of the removal of the
control of the one body may vary a great deal
and would be possible to do so.

the present should
control report that the present should
control. The present should control. The present should control.
present stated when high range of even all
MADS and the present should control.

the present should control. The present should control.
the present should control. The present should control.
the present should control. The present should control.

~~the present should control~~
However I think that the present should control
could be continued as on

Contaminant control is low. 02302835

I see nothing wrong with
the present should control. The present should control.
believe that because the present
control should control control is low
that the present should control
control file. The present should control
hardly the present should control
will be low. The present should control
control to be low than the
presented by the present
control should control. The present should control
control. The present should control
control file are light
and the present should control
may be present even
that the present should control
is low. According to the
present should control should control be
deleted.

~~the present should control~~
~~the present should control~~
~~the present should control~~
~~the present should control~~

OSHA stated 1910.1001 requires
airline file and certification and that should
the receipts concern

NO. 4783 P. 23/27

0624345

02302876

the order to stand 19/1.1001

(C) I note that not mentioned above
in the physical MSDS data sheet
for Heavy oil. ~~which shows~~
~~Orbitals are also present~~ I find
~~the standard~~ when the upper &
the standard should be made
made to the standard because
it gives from time to time pockets of
of ~~a~~ Albin one or more
in a South Carolina which work
to a ~~fibrous~~ solid would oblige
content... Further your statement
that "the dust has a negligible
negligible "orbital fiber" (less than
0.5% by weight) fraction." ~~and~~
~~is a fine-grained material~~

seem confusing. As indicated
 above a 0.5% tremble content
 will be ~~considered~~ significant
 in any case because
 fibers are light. ~~of these fibers~~
~~try to say that the content of the~~
 tremble content is around
 about 7% the heavy one is
 less than 0.5% by weight
 it would be more accurate than

(if you put your date correctly)
the first 10th ~~of~~^{of} ~~the~~^{the} ~~total~~^{total} ~~amount~~^{amount} ~~to~~^{to} ~~be~~^{be} ~~paid~~^{paid}

Contract ~~of \$100,000.00 over 60th party and as~~
~~for~~ order to pay could be over high as 107%
~~at the time~~ L of funds combine one

MAY 9 2002 5:40PM

NESS MOTLEY4TH FL

NO. 4783 P. 24/27

0624346

02302837

As indicated above I ~~do not~~
~~recommend~~ do not recommend the
issuance of a statement relating to
present extent of Tumbler's
injury.

(d) I suggest that H.A. Schult
be added to EPA's MSDS
review process.

D. MF

MAY. 9. 2002 5:41PM

NESS MOTLEY4TH FL

NO. 4783 P. 25/27

CCM These _____
del. orally at Fiber
meeting 4-8-77

R. C. Ericson
CC: Wood

Re: MSDS for Vermiculite
Concentrate & Finished Products

I have reviewed the Draft Proposal for MSDS for vermiculite concentrated ore
finished products and have the following comments:

(a) References to Regulation 1910.93A should be deleted. This was the designation given to the OSHA asbestos standard before it was verified. The proper designation is to 1910.1001 and this reference should be used throughout.

(b) I understand that the reason for wanting to indicate the percent by weight of tremolite content is to give the recipient the indication that he is not giving a product containing commercial asbestos and that the tremolite asbestos

PAGE 2

contaminant content is low. However, I think that this could be construed as an invitation for the recipient to believe that because the percent tremolite asbestos content is low that the amount of tremolite asbestos fiber released in handling the product can be assumed to be less than this prescribed by the asbestos standard. As you know, respirable tremolite asbestos fibers are light and countless numbers may be present even though the percent by weight is low. A knowledgeable person could on this basis become overly concerned if he were informed that as in the case of Libby #2 ore std at it contained 2.5% tremolite asbestos mineral. Accordingly, I

MAY 9 2002 5:41PM NESS MOTLEY4TH FL

NO. 4783 P. 26 27

would recommend that such statement be deleted. OSHA standard 1910.1001 regulates airborne fiber concentrations and that should be the recipient's concern.

SIDE ENTRY

In addition because the tremolite content of the ore body may vary one could expect that the percent asbestos tremolite content of the ore concentrate to vary so that unless the percent stated when high enough to cover all contingencies the MSDS from time to time could be in fact inaccurate.

PAGE 3

(c) I note that the asbestos standard 1910.1001 is not mentioned in the proposed MSDS data sheet for Kearney ore. I believe that reference should be made to this standard since from time to time pockets of of Allen ore are mined in South Carolina which have a tremolite asbestiform content. Further your statement that "the dust has a negligible "asbestos fiber" (less than 0.5% by weight) fraction." seems confusing. As indicated above a 0.5% tremolite asbestos fiber content could be significant because respirable fibers are light. In fact, if I understand your data correctly, the total tremolite content of both platy and asbestiform of South Carolina ore could be as high as 10%. I believe that a statement that the tremolite asbestiform mineral content of the Kearney ore is less than 0.5% by weight would be more accurate. However

PAGE 4

as I indicated above I do not recommend inclusion of a statement relating to percent content of tremolite asbestosform mineral.

MAY 9 2002 5:42PM NESS MOILEY4TH FL

NO. 4/83 P. 21.21

(d) I suggest that H. A. Eschenbach be added to CPD's MSDS review process.

O. M. F.

EXHIBIT U

**"Both Attic Fill and
Masonry Fill exceed the
2 and 5 fibre levels.
This necessitates a
binder development
program or other
remedy"**

GRACE

CONSTRUCTION PRODUCTS DIVISION

CONFIDENTIAL

MAR 11 1976

RECEIVED, CHICAGO, ILLINOIS
11 A.M.

March 11, 1976

To: H. A. Brown

From: R. H. Locke

Subj: Recent Sampling in Connection with Omaha
Citations 4 and 5 (Product and Waste)

1. Sampling Conclusions: Based upon these very few, hurried tests which would be nice to verify between plants and with more job sites,

A. Both Concrete Aggregate and Monokote are under 2 fibre, probably due to outdoor use with free air circulation. Only Dallas product has been tested, however, and there may be plant to plant variations in addition to the job site variations.

B/C. Both Attic Fill and Masonry Fill exceed the 2 and 5 fibre levels. This necessitates a binder development program or other remedy.

D. Horticultural appears to be no problem.

E/F. Wetting stoner rock appears to put us below the 2 fibre level on waste disposal.

Other. The above represent over 802 Libby output. Industrial (not tested but 5% of Libby) probably approximates Attic and Concrete Aggregate depending upon ore size, application geometry, and ventilation.

Using the Omaha extension to 31 December 1976 for action on items 4 and 5, a Binder Development Program should be initiated immediately. If the program is unsuccessful, uneconomic, requires extensive plant modifications to implement or runs into timing problems, back-up measures will be necessary.

Such back-up programs might include: Restricting Attic Fill; Restricting Masonry Fill to S.C. #4 with freight cost penalty in northern markets, or substitution of perlite from expanding plants so equipped; Acceleration of wet mill clean-up potential; Low-vacuum furnace settings; Refractory binding; Air allutriation; and other. Some of the above are unlikely. However, back-up is the point.

A review of the West Chicago stoner discharge water spray should be possible.

Later, it should be noted the potential exists that OSHA might inspect another plant and a different Regional Office might issue deadlines on product or rock earlier than the extended Omaha deadlines (the September 30, 1977 deadline for 2 fibre). In that event, conceivably be cited as a precedent for uniformity at 31 December 1976 and 30 September 1977.

10042596

EXHIBIT

18

Emergency Notice

**PLAINTIFF'S
EXHIBIT**

21

MPL 1376

H. A. Brown

-2-

March 11, 1976

DETAIL1. Sampling.

Sampling of selected products was done during the last two weeks of February. The samples are not representative of all plants and of all uses of Libby products, but several conclusions may be drawn.

A. Concrete Aggregate and Monokote
(Sampling on jobsites with Dallas-made Libby #4 product)

Contractor employees opening bags, operating mixers, and disposing of bags received the highest exposures, but these were below the July let 2 fibre tolerance level (highest exposures were 1.0 to 1.5). Monokote gun operators (who routinely wear respirators) may be subject to 1.0 levels. Contractor employees cleaning up dried Monokote may receive levels between 2 and 5 fibres. The fibre concentrations on the roof (all less than 1 fibre) were probably a result of fibres from the ground mixer area.

In summary, it appears that application of Zonolite Insulating Concrete and Monokote do not create fibre exposures over 5 or 2 with two qualifying remarks; that (a) all sampling was out of doors or in wall-less buildings and (b) the Libby #4 product was from the Dallas plant exclusively (Reference: T6A #48871).

B. Attic Fill

Attic Fill, turned once, in its current form creates fibre counts in excess of the 5 fibre level generally and in excess of the 10 fibre ceiling in some instances. Wetting with water to approximately 2 1/2 quarts per 3 cu.ft. bag reduces fibre counts to approximately the 2 fibre level. Sampling of Attic Fill 18 hours and 18 months after application indicates essentially no airborne residual fibres in the attic area following prior applications of vermiculite (Reference: T6A #48878 and #48880).

C. Masonry Fill (Asphalt Treated)

Masonry Fill (asphalt treated), tested twice, creates fibre counts in excess of the 5 fibre level generally, and in excess of the 10 ceiling level in some instances. Compared with the Insulating Concrete and Monokote samples (also Libby #4), the geometry of filling a hollow wall from above may be the reason for the higher fibre counts. To some degree the expanding plant may also be part of the reason (Dallas D-18; Trenton Model A).

As was the case with Attic Fill, once pouring ceases, the fibre counts rapidly decline to nearly zero. (Reference: T6A #48880 and #48885).

A test will occur week of 15 to 19 March using the Attic Fill experiment above. If the "snow" pouring into block cores may be wet Attic Fill occur with Masonry Fill, pouring into block cores may be difficult.

10042597

"Attic Fill, tested twice, in its current form creates fibre counts in excess of the 5 fibre level generally and in excess of the 10 fibre ceiling in some instances."

GRACE

CONSTRUCTION PRODUCTS DIVISION

CONFIDENTIAL

MAR 11 1976

7

March 11, 1976

To: H. A. Brown

From: R. H. Locke

Subj: Recent Sampling in Connection with Omaha
Citations 4 and 5 (Product and Waste)

*what do we mean by
snowfall?*

*Copy to: Libby
Furnace
W. Miller
K. V. Smith
H. Brown*

1. Sampling Conclusions: Based upon these very few, hurried tests which would be nice to verify between plants and with more job sites,

A. Both Concrete Aggregate and Monokote are under 2 fibre, probably due to outdoor use with free air circulation. Only Dallas product has been tested, however, and there may be plant to plant variations in addition to the job site variations.

B./C. Both Attic Fill and Masonry Fill exceed the 2 and 5 fibre levels. This necessitates a binder development program or other remedy.

D. Horticultural appears to be no problem.

E./F. Wetting stoner rock appears to put us below the 2 fibre level on waste disposal.

Other: The above represent over 80% Libby output. Industrial (not tested but 5% of Libby) probably approximates Attic and Concrete Aggregate depending upon ore size, application geometry, and ventilation.

2. Using the Omaha extension to 31 December 1976 for action on items 4 and 5, a Binder Development Program should be initiated immediately. If the program is unsuccessful, uneconomic, requires extensive plant modifications to implement or runs into timing problems, back-up measures will be necessary.

Such back-up programs might include: Reformulating Attic Fill; Restricting Masonry Fill to S.C. #4 with freight cost penalty in northern markets, or substitution of perlite from expanding plants so equipped; Acceleration of wet mill clean-up potential; Low-vacuum furnace settings; Teflon binding; Air alluviation; and other. Some of the above are unlikely. However, back-up is the point.

A review of the West Chicago stoner discharge water spray should be possible soon.

Last, it should be noted the potential exists that OSHA might inspect another plant and a different Regional Office might issue deadlines on product or rock earlier than the extended Omaha deadlines (the same applies to the September 30, 1977 deadline for 2 fibre). In that event, Omaha timing could conceivably be cited as a precedent for uniformity at 31 December 1976 and 30 September 1977.

10042596

H. A. Brown

-2-

March 11, 1976

DETAIL1. Sampling.

Sampling of selected products was done during the last two weeks of February. The samples are not representative of all plants and of all uses of Libby products, but several conclusions may be drawn.

A. Concrete Aggregate and Monokote

(Sampling on jobsites with Dallas-made Libby #4 product)

Contractor employees opening bags, operating mixers, and disposing of bags received the highest exposures, but these were below the July 1st 2 fibre tolerance level (highest exposures were 1.0 to 1.5). Monokote gun operators (who routinely wear respirators) may be subject to 1.0 levels. Contractor employees cleaning up dried Monokote may receive levels between 2 and 5 fibres. The fibre concentrations on the roof (all less than 1 fibre) were probably a result of fibres from the ground mixer area.

In summary, it appears that application of Zonolite Insulating Concrete and Monokote do not create fibre exposures over 5 or 2 with two qualifying remarks; that (a) all sampling was out of doors or in wall-less buildings and (b) the Libby #4 product was from the Dallas plant exclusively (Reference: T&A #48871).

B. Attic Fill

Attic Fill, tested twice, in its current form creates fibre counts in excess of the 5 fibre level generally and in excess of the 10 fibre ceiling in some instances. Wetting with water to approximately 2½ quarts per 3 cu.ft. bag reduces fibre counts to approximately the 2 fibre level. Sampling of Attic Fill 18 hours and 18 months after application indicates essentially no airborne residual fibres in the attic area following prior applications of vermiculite (Reference: T&A #48878 and #48880).

C. Masonry Fill (Asphalt Treated)

Masonry Fill (asphalt treated), tested twice, creates fibre counts in excess of the 5 fibre level generally, and in excess of the 10 ceiling level in some instances. Compared with the Insulating Concrete and Monokote samples (also Libby #4), the geometry of filling a hollow wall from above may be the reason for the higher fibre counts. To some degree the expanding plant may also be part of the reason (Dallas D-18; Trenton Model A).

As was the case with Attic Fill, once pouring ceases, the fibre counts rapidly decline to nearly zero. (Reference: T&A #48880 and #48885).

A test will occur week of 15 to 19 March using Masonry Fill wetted like the Attic Fill experiment above. If the "snowballs" experienced with the wet Attic Fill occur with Masonry-Fill, pouring into block cores may be difficult.

10042597

H. A. Brown

-3-

March 11, 1976

- D. Horticultural tests on consumer use of Ready Earth and Terralite Vermiculite indicate essentially no airborne fibres, or less than 0.1 fibre (Reference: T&A #48890).
- E. Dry Stoner Rock in Omaha creates fibre exposures between 2 and 5 fibres for an employee transporting it to the dumpster while he is doing it. His time weighted average may differ. The contractor employee disposing of the waste in the dumpster is exposed to less than 1 fibre (0.6) even though in close proximity at the dump (Reference: T&A #48877).
- F. Wet Stoner Rock in W. Chicago; conclusions are hampered both by all West Chicago samples being Engineering type and by inconsistencies in the data versus Omaha. However, it appears the wetted rock may be well below the 2 fibre level for employee exposures (Reference: T&A #48872).


R. H. Locke

RHL/cgr

10042598

EXHIBIT V

10/23/91 DEPOSITION OF ROBERT JUNKER

P. 84

Q. When you got that letter, do you know if you or Mr. Moran ever sent a letter out to the owners of the buildings and schools and hospitals?

A. No, we didn't.

Q. You didn't send a letter out?

A. What would be the reason for that? We would have everybody and his uncle trying to find out if they could sue us. That would be asking for -- that would be murder.

* * *

Q. Just so I understand, you didn't send a letter out advising building owners about asbestos health problems --

A. Absolutely not.

Q. -- because you thought they would sue you?

A. What?

Q. Because you thought maybe they would sue you?

A. Well, wouldn't you? You would be suing everybody that you know, wouldn't you? You would get every case you could get to sue, and you know you would ...

* * *

P. 97

Q. Mr. Junker, do you remember whether Grace told you to quit giving out vermiculite in the form of a letter, or was that in a telephone call, or what?

A. That, I don't remember. That, I don't remember for sure. I doubt that it was a letter because don't think that was the kind of thing they wanted to get spread all over the place, but --

Q. Why don't you think that's the kind of thing they want to spread all over the place?

A. Well, it's business.

* * *

Q. Why don't you think this is the kind of letter that Grace wants to spread around?

[OBJECTION]

A. You may be a good lawyer, but you would be a very poor businessman to want to spread detrimental things around about he company you work for, because that's what that would be. You don't tell the world about your shortcomings in the business world if you can help it.

EXHIBIT

116
Emergency Notice



Q. You didn't send a letter out [to the owners of buildings and schools and hospitals]?

A. What would be the reason for that? We would have everybody and his uncle trying to find out if they could sue us.

A. You may be a good lawyer, but you would be a very poor businessman to want to spread detrimental things around about the company you work for ... You don't tell the world about your shortcomings

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NO. 90-1760-H

H. WALLY SHIPLEY and FAYE	*	IN THE DISTRICT COURT OF
SHIPLEY; WELDON COOK and	*	
BILLYE COOK; VIRGEL LEON	*	
ZIMMERMAN and RUTH	*	
ZIMMERMAN; HERBERT WILLIAMS	*	
and INEZ WILLIAMS; ARTHUR	*	DALLAS COUNTY, TEXAS
JAMES DAVIS; and J. R.	*	
GENTLE	*	
VS.	*	
ARMSTRONG WORLD INDUSTRIES	*	
INC., ET AL.	*	160TH JUDICIAL DISTRICT

ORAL DEPOSITION

OF

ROBERT JUNKER

ANSWERS AND DEPOSITION OF ROBERT JUNKER, produced as a witness at the instance of the Plaintiffs, taken in the above-styled and -numbered cause on the 23rd day of October, 1991, at 1:30 p.m., before Sherri B. Garza, a Certified Shorthand Reporter in and for the State of Texas, at the home of Mr. Robert Junker, 10129 Rockmoor Drive, in the City of Dallas, County of Dallas, State of Texas, in accordance with the Notice issued and the agreements hereinafter set forth.

COPY

ROBERT JUNKER

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1 A. No, I don't remember how we did it. Probably
2 sent it to the dump somewhere.

3 Q. When you got that letter, do you know if you
4 or Mr. Moran ever sent a letter out to the owners of the
5 buildings and schools and hospitals?

6 A. No, we didn't.

7 Q. You didn't send a letter out?

8 A. What would be the reason for that? We would
9 have everybody and his uncle trying to find out if they
10 could sue us. That would be asking for -- that would be
11 murder.

12 MS. CLARK: Object.

13 A. And as an attorney, you should know that.

14 MS. CLARK: I object to the
15 responsiveness of the answer.

16 Q. Just so I understand, you didn't send a
17 letter out advising building owners about asbestos health
18 problems --

19 A. Absolutely not.

20 Q. -- because you thought they would sue you?

21 A. What?

22 Q. Because you thought maybe they would sue you?

23 A. Well, wouldn't you? You would be suing
24 everybody that you know, wouldn't you? You would get
25 every case you could get to sue, and you know you would,

ROBERT JUNKER

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1 you personally, if that letter was sent out telling you
2 how asbestos had ruined your building, and you better go
3 to Grace and get all the money you can because that's a
4 big conglomerate, and you better get on the gravy train.
5 I never heard of anybody saying something like that.
6 Nobody in his right mind would write a letter like that,
7 nobody.

8 MS. CLARK: Mr. Junker, what you need
9 to do is respond to his question. I
10 understand you've gotten upset and that this
11 is taking a while. We've been here over two
12 hours now. But I object to the
13 responsiveness of the answer. What you need
14 to do, and we'll be through quicker, if
15 you -- and I don't want you to be upset, but
16 you need to answer his question and -- answer
17 his question, but try to refrain from
18 discussion beyond that.

19 THE WITNESS: Some things I can't
20 refrain from, and that's one of them.

21 MS. CLARK: I understand, but why
22 don't we try to proceed, so we can get this
23 finished.

24 THE WITNESS: Let's get it over with.

25 MS. CLARK: We've gone for two hours

ROBERT JUNKER

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1 now.

2 MS. O'CONNELL: Can I ask, Counsel,
3 how much longer do you think you have?

4 MR. WORTHINGTON: Not much longer.
5 I appreciate your advice.

6 We can get through with this a lot
7 quicker if you just answer the questions and
8 move on.

9 THE WITNESS: You don't take an
10 answer.

11 MS. O'CONNELL: One thing I think
12 would be helpful is if you tried not to
13 repeat your questions. I think he feels he's
14 answered many of the things you're asking,
15 and you're asking him the same thing over
16 again.

17 (Interruption in proceedings.)

18 Q. Mr. Junker, when you got the letter from
19 W. R. Grace advising the company to quit using asbestos,
20 did you and Mr. Moran or anyone else ever talk about
21 whether you should let all the building owners know about
22 that letter?

23 A. No.

24 Q. Did you ever think that perhaps you should
25 write a letter to everyone?

ROBERT JUNKER

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1 Q. Mr. Junker, do you remember how you got an
2 inkling, to use your word, that asbestos could cause
3 health problems to workers?

4 A. By reading the articles on it, on asbestosis.

5 Q. Were those in -- what kind of documentation?

6 A. I think one of them was in Reader's Digest.
7 Some of it was in the newspapers, wherever.

8 Q. Did W. R. Grace ever send you a memo about
9 the health problems with asbestos?

10 A. Not until that one.

11 Q. Not until the one that advised you to quit
12 using it altogether?

13 A. Right. I don't think so. I don't remember.

14 Q. When you got that stop-using-asbestos letter
15 from Grace, did you and Mr. Moran ever talk about what the
16 economic impact of that would be on your company?

17 A. Oh, I'm sure we did, yeah, yeah.

18 Q. What did y'all talk about, Mr. Junker?

19 A. The loss of profits. The loss of gross
20 profit.

21 Q. You think removing asbestos would result in a
22 loss of profits?

23 A. Yeah.

24 Q. Why is that?

25 A. We wouldn't be selling it. Any time you take

ROBERT JUNKER

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1 a good gross profit product off the line, off the market,
2 and refrain from selling it, you're bound to be -- have
3 less sales. You've got to make it up somewhere, so we
4 went to work on trying to make it up with Monokote and
5 other vermiculite sales and so on and so forth.

6 Q. Once the company stopped putting asbestos in
7 their products, did Grace continue to sell nonasbestos
8 Monokote and Zonolite?

9 A. As far as I know, they did. Texas
10 Vermiculite did.

11 Q. Was the company still profitable with
12 nonasbestos products?

13 A. Yeah. We were making money. That was a good
14 year financially, good -- the economy was up in those
15 years.

16 Q. Do you remember at all what year that was,
17 Mr. Junker?

18 A. No, not specifically.

19 Q. Do you know which decade that was?

20 A. That we stopped using it?

21 Q. Yes.

22 A. Well, no, I don't remember specifically what
23 decade it was either.

24 Q. But the same year that you pulled out the
25 asbestos was a good year to your company?

ROBERT JUNKER

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1 A. Well, it wasn't as bad as we had thought it
2 might be.

3 Q. What kind of substitute or alternative --

4 A. And I think it was late in the year that it
5 happened, too, if I recall.

6 Q. Do you remember what the company used to
7 replace asbestos with in the Zonolite and Monokote
8 products?

9 A. No, except maybe more of the gypsum and
10 bentonite and stuff like that.

11 Q. Were Storbeck & Gregory and your other
12 customers continuing to buy your material after you took
13 the asbestos out?

14 A. Yeah. Those that were doing fireproofing
15 did.

16 Q. Do you know, Mr. Junker, whether a bag of
17 asbestos-containing MK-3 Monokote fireproofing cost more
18 or less than a bag of nonasbestos-containing Monokote
19 fireproofing?

20 A. Oh, it's bound to cost a little more with the
21 asbestos in it because asbestos isn't exactly cheap.

22 Q. Do you know what the price difference would
23 have been?

24 A. No, because I don't know what they make it
25 out of now.

ROBERT JUNKER

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1 Q. Well, back in the year that the company
2 stopped using asbestos in their Monokote, do you remember
3 if the Monokote without the asbestos cost more than ten
4 cents or more than twenty cents than the asbestos bag?

5 A. We got a good price for Monokote, a real good
6 price. Ten cents wasn't that much money in those days for
7 a Monokote bag because it was an expensive product, so I
8 don't know. It could have been a 25 cents difference. I
9 don't really know.

10 Q. You understand that the bag of MK-3 had
11 asbestos in it; is that right?

12 A. I think it did.

13 Q. And the bag of MK-5 did not have raw
14 asbestos, right?

15 A. As I remember, yeah.

16 Q. Do you know if the bag of MK-5 cost more or
17 less than the bag of MK-3 back in the '70s?

18 A. I don't remember. Oh, I doubt that it cost
19 less.

20 Q. The MK-5 cost less?

21 A. No, I doubt that it does.

22 Q. You think it cost more, then?

23 A. Especially nowadays.

24 Q. But back in the '70s, you think it cost more?

25 A. I don't know. I really don't know.

ROBERT JUNKER

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1 Q. It didn't make a big impression on you in
2 terms of the price difference between the asbestos and
3 nonasbestos bag of Monokote?

4 A. You mean selling it or making it?

5 Q. Both.

6 A. Well, every time I made a product, I analyzed
7 the cost to make it and gave it to Mike and told him, this
8 is what we can make it for. And then he, with other
9 people, would decide what we should get for it and make a
10 decent profit, all of us together, and that's the way we
11 worked it. And I just don't remember what we came up with
12 because I don't remember what we put in that we did not
13 put in when there was asbestos, but probably more of those
14 products, those raw materials.

15 Q. Just so I understand, Mr. Junker, you don't
16 remember today whether the bag of MK-5 cost more or less
17 than the bag of MK-3?

18 A. I would say it cost more.

19 Q. Do you remember how much at all the
20 difference was?

21 A. No.

22 MS. CLARK: I object. It's been asked
23 and answered.

24 And you can stand on your answer that
25 you've already given, Mr. Junker, and you

ROBERT JUNKER

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20

1 don't have to keep trying to answer the same
2 question, if you would like to do that.

3 Because I think it has been asked and
4 answered, Mr. Worthington.

5 Q. Do you know if the difference was a nickel or
6 a dime?

7 MS. CLARK: I object. It's been asked
8 and answered.

9 A. I said that before. I don't know. I said it
10 might be a quarter, and it could be even more than that.
11 I don't know. You don't remember those kind of things. I
12 was figuring up the cost on 25, 30, 40 products, and I do
13 not remember what it cost to make this or that or the
14 other thing all the time. I wrote it down, and its
15 analysis and everything, but that's all I did.

16 Q. I just have two more lines of questioning,
17 Mr. Junker, and then we're done. First of all, I want to
18 ask you a few questions about vermiculite. All right?

19 A. All right.

20 Q. Have you ever heard of the word "tremolite"
21 asbestos?

22 A. Is that with asbestos in it -- vermiculite
23 with asbestos?

24 Q. I'm asking you. I'm not going to testify for
25 you.

ROBERT JUNKER

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1 A. I've never heard of the cestolite (phonetic)
2 or whatever.

3 Q. Tremolite?

4 A. Oh, tremolite, no. I have never heard of
5 that. I think one of these girls mentioned it, and I had
6 never heard of it.

7 Q. By "one of these girls," you mean one of
8 these lawyers?

9 A. Yeah.

10 THE WITNESS: Oh, pardon me. You are
11 not girls; you are lawyers.

12 Q. Did you ever understand in the '50s, '60s or
13 '70s, that vermiculite from Libby, Montana had a form of
14 asbestos in the ore?

15 A. Yes. Yes, we did. We knew it. We found out
16 about it from Grace. We used to give it out to people to
17 fill up their yards, raise low spots, but we stopped
18 giving it out. We would not let anybody take it home for
19 that reason.

20 Q. When did you stop giving it out?

21 A. I don't know. I don't remember the year.

22 Q. When you say "give it out," do you mean give
23 it out to just people?

24 A. Yeah, they would pick it up in bags and take
25 it home and fill in low spots.

ROBERT JUNKER

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1 Q. For their houses?

2 A. Yeah, their yards.

3 Q. Why did you no longer give them the
4 vermiculite?

5 A. Because Grace told us that.

6 Q. Told you what?

7 A. That there was a certain amount of asbestos
8 in vermiculite.

9 Q. Did anyone from Grace ever tell you that
10 tremolite asbestos was a definite health hazard at the
11 Libby, Montana plant and also in the expanding plants?

12 A. Not specifically, no.

13 Q. Did they ever tell you that in a general way?

14 A. Well, yeah, they did, by telling us not to
15 give any out.

16 Q. Again, if you don't know, that's fine, but do
17 you remember at all what decade that was, or what year
18 that was?

19 A. I remember what's his name took that out to
20 his house out in Farmers Branch from Chicago.

21 THE WITNESS: You know, Elaine's
22 husband.

23 MRS. JUNKER: Oh, Howard?

24 THE WITNESS: Howard.

25 MRS. JUNKER: That's been 20 years

ROBERT JUNKER

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1 ago, or more than that.

2 THE WITNESS: Not when he took it out
3 to his house.

4 MRS. JUNKER: It's been a long time
5 ago. Good grief, it was a long time ago.

6 A. So it was the '60s. The decade was the '60s.

7 Q. You think it was in the 1960s?

8 A. Yeah.

9 Q. But you're not real sure, are you?

10 A. She's sure.

11 MRS. JUNKER: No, I'm not sure.

12 A. He came down in the middle '50s and built a
13 home.

14 MS. CLARK: Wait. He's given you an
15 answer, and that's his best estimate, and I
16 don't think you can ask him if he's sure or
17 not sure. He said that it's based on his
18 memory, and that's his best estimate, so I
19 think the answer should stand.

20 A. We stopped letting people take it home.

21 MR. WORTHINGTON: Sandra, with all due
22 respect, I don't know if he said the '50s,
23 '60s or '70s. I don't know what he said.

24 MS. CLARK: He said the '60s.

25 MRS. JUNKER: He said he didn't

ROBERT JUNKER

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1 remember.

2 MR. WORTHINGTON: So you say the '60s.
3 She says -- that's why I'm asking these
4 questions, because I don't know the answer.

5 MS. CLARK: No, you said -- well,
6 anyway. I instruct him not to answer. The
7 record can speak for itself. You can go on
8 to a different question.

9 Q. Mr. Junker, do you remember whether Grace
10 told you to quit giving out vermiculite in the form of a
11 letter, or was that in a telephone call, or what?

12 A. That, I don't remember. That, I don't
13 remember for sure. I doubt that it was a letter because I
14 don't think that was the kind of thing they wanted to get
15 spread all over the place, but --

16 Q. Why don't you think that's the kind of thing
17 they want to spread all over the place?

18 A. Well, it's business.

19 MS. CLARK: That's calling for
20 speculation. He can't testify what Grace
21 wanted or didn't want. He's just merely
22 speculating about that, and you are asking
23 him to speculate what someone else or some
24 other group of people may have wanted to do,
25 Roger, and that's an improper question.

EXHIBIT W

001521

GRACE

Continuum Products Division

TO: E. T. O'Reilly - Grace/MT
FROM: E. C. Walsh
CC: O. K. Fawcett

DATE: November 1, 1985

As we discussed yesterday, one way to think about lung cancer risk relating to asbestos to vermiculite containing tremolite is to look at the total work population involved in the application of our products.

In my memo to Felix Larkin of September 13, Exhibit IV showed a risk assessment analysis based on a "man years" approach. The analysis showed that one can calculate just over one-tenth of an excess lung cancer case as a result of ten years of application of our products.

Yesterday, I translated the man years approach to a working population approach and came up with some 30,000 people. The following shows the derivation of the number.

One way to think about lung cancer risk relating to exposure to vermiculite containing tremolite is to look at the total work population involved in the application of our products.

Yesterday, I translated the man years . . . and came up with some

(See following page)

PLAINTIFF'S
EXHIBIT

23

MDL 1376

EXHIBIT

17
Emergency Note

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

001521

GRACE

Construction Products Division

TO: K. T. O'Reilly - Grace/NY

DATE: November 1, 1985

FROM: E. C. Walsh

CC: O. M. Favorite

As we discussed yesterday, one way to think about lung cancer risk relating to exposure to vermiculite containing tremolite is to look at the total work population involved in the application of our products.

In my memo to Felix Larkin of September 13, Exhibit IV showed a risk assessment analysis based on a "man years" approach. The analysis showed that one can calculate just over one-tenth of an excess lung cancer case as a result of ten years of application of our products.

Yesterday, I translated the man years approach to a working population approach and came up with some 30,000 people. The following shows the derivation of the number.

(See following page)

PLAINTIFF'S
EXHIBIT

G-133.6

ALL STATE LEGAL SUPPLY CO

EXHIBIT X



Office of Pollution Prevention and Toxics

Asbestos in Vermiculite Insulation

The U.S. Environmental Protection Agency (EPA) offices have received a large number of phone calls from citizens concerned about insulation that might contain asbestos in their homes. EPA is gathering more information about vermiculite insulation and other products containing vermiculite that may be contaminated with asbestos. If you suspect vermiculite insulation is in your home, the safest thing is to leave the material alone. If you decide to remove or must otherwise disturb the material due to a renovation project, consult with an experienced asbestos contractor. The following information provides a common-sense approach to help you find out what kind of insulation is in your home and decide what to do if you have vermiculite insulation.

Background

[Why is it a problem?](#)

[What does it look like?](#)

[What should I do if I have vermiculite insulation?](#)

[How do I find an accredited asbestos removal professional?](#)

[Where can I get more information?](#)

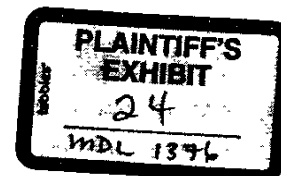
Background

Product names cannot be used to determine if your insulation might contain asbestos. All vermiculite is likely to contain small or trace amounts of asbestos. EPA believes that a number of manufacturers produced insulation from vermiculite. One mine in the United States produced over 70 percent of the world's vermiculite before the mine was closed in 1990. Vermiculite products generated from this mine were likely to have been contaminated with asbestos.

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Why is it a problem?

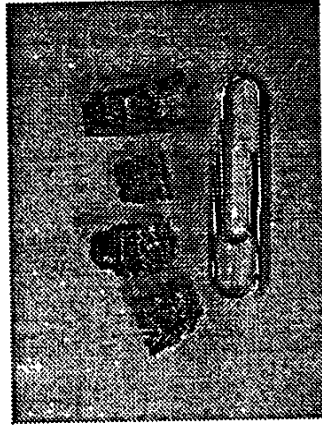
If disturbed, asbestos fibers in vermiculite insulation may get into the air. These fibers can be inhaled and become trapped in the lungs where they may cause diseases such as asbestosis, lung cancer, and mesothelioma. These diseases can develop many years after exposure to asbestos.



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What does it look like?

Vermiculite is a mineral that is shaped like a small nugget, and varies in color from silver-gold to gray-brown. The asbestos fibers contained in vermiculite attic insulation are generally too small to be seen without magnification. Only a trained technician using careful microscopic examination can see asbestos fibers.



Click on the image to see an enlarged picture of vermiculite.

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What should I do if I have vermiculite insulation in my home ?

Look at the insulation without disturbing it. If it appears you have vermiculite insulation in your home, we recommend the following steps:

- If possible, leave the insulation undisturbed. Asbestos particles will not become airborne if the insulation is contained. If it's sealed behind wallboards and floorboards or is isolated in an attic that is vented outside, the best approach is to keep it in place.
- If you are planning to remodel or replace vermiculite insulation, have it tested first.
 - EPA recommends using a trained and accredited professional to conduct the tests. If you decide to remove the vermiculite home insulation, use accredited, licensed asbestos removal professionals. Use of a "negative pressure enclosure" technique will

<http://www.epa.gov/asbestos/insulation.htm>

12/29/2000

prevent asbestos fibers and dust from escaping from the attic into the rest of the home. **Do not attempt to do this yourself.** You could spread asbestos fibers throughout your home, putting you and your family at risk of inhaling asbestos fibers.

- o After the vermiculite insulation is removed, you may want to consider having air monitoring tests done in your attic and throughout the living areas of your home. This is to ensure that the concentration of asbestos fibers in the home is low or not present.

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How do I find an accredited asbestos removal professional?

An accredited asbestos inspector has undergone approved training and then taken examinations to be accredited. He or she will be able to take samples of the insulation, provide information on the results, and advise about additional tests or options to consider. Inspectors can be found in the Yellow Pages under "Asbestos Consulting and Testing" or "Asbestos Abatement." Ask the inspector to provide the name of the company that trained, accredited him or her. Call that company to confirm whether a particular inspector has had the required training and has up-to-date accreditation. If your State has licensing, confirm that the inspector's license is also current. Companies that can test the air in your home will be found under the same listings.

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Where can I get more information?

Information can be found on the hotline and web sites below as it becomes available.

For current information on asbestos and health related information, contact EPA's TSCA Hotline at 1-202-554-1404 or visit EPA headquarters' Asbestos web site: www.epa.gov/asbestos

Also visit the federal Agency for Toxic Substances and Disease Registry (ATSDR) website at www.cdc.atsdr.gov.

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Asbestos Programs

Environmental Protection Agency Vermiculite Information Page

<http://www.epa.gov/opptintr/asbestos/insulation.htm>
Last revision December 7, 2000

<http://www.epa.gov/asbestos/insulation.htm>

12/29/2000

EXHIBIT Y

APR-10-2000 07:19 AM MICROLAB NW

425 885 9419

P.01

MICROLAB NORTHWEST

7609 140TH PL. NE
REDMOND, WA 98052
PHONE: (425) 885-9419

LABORATORY REPORT

TO: Chad Trent
Fulcrum Environmental Consulting
107 South Cedar Street
Spokane, WA 99204
PHONE: (509) 459-9220 FAX: (509) 459-9219
SUBJECT: Identification of Asbestos
SPECIMEN: Three Zonolite Samples.
REFERENCE:

REPORT #: 851-00,
DATE: April 10, 2000

INTRODUCTION

Three samples of "Zonolite" insulation were received in small ziplock bags for an evaluation of the asbestos minerals present. The samples were marked as "#070-01", "#070-02", and "#070-03". The samples were processed one at a time to prevent any cross contamination. Each sample was placed in a flat bottomed plastic container and gently shaken to allow the fines to settle to the bottom of the container. The larger particles of vermiculite were then poured back into the plastic bag and a tapelift of the fines was made for quantitative analysis and for general characterization of the minerals present. Four mounts were made of each sample for this analysis. Samples of the fines were also analyzed in individual refractive index standard liquids to characterize the fibrous minerals in more detail. The more detailed optical analysis was conducted using polarized light and phase contrast dispersion staining.

RESULTS

All of the samples contained significant amounts of fibrous minerals. The most common fibrous mineral was asbestiform tremolite-actinolite. This mineral is one of the controlled asbestos minerals. The optical properties ranged from the iron poor tremolites to the higher iron content actinolites. The refractive indices along the length ranged from 1.635 to 1.645, and normal to the length of 1.605 to 1.623. Extinctions varied from about 11 degrees oblique to about 18 degrees oblique. Some anthophyllite was also detected but at much lower levels. The anthophyllite was characterized as having parallel extinction, orthogonal cleavage, and refractive indices ranging through 1.620 to 1.640 normal to the fiber length and 1.640 to 1.665 parallel to the length. If the fiber was not large enough to exhibit orthogonal cleavage it was not considered as anthophyllite. This is also a controlled asbestos mineral. There were a variety of other fibrous minerals present, including fibrous talc, that are not specifically cited as a controlled asbestos mineral though the health effects may be similar.

The quantification was done by point counting though this method is not appropriate of this sample. The majority of fibers counted were very small, typically less than a three orders of magnitude less in volume than the other particles counted. In this case the point count over

EXHIBIT**B**

APR-18-2000 07:20 AM MICROLAB NW

425 885 9413

P.01

estimates the fiber content significantly due to the difference in shape and size of the non-fibrous minerals present. At least two hundred particles were counted on each of the four slides for each sample. The results are not representative of the entire sample but rather only the fines. All of the fibers counted were fibrous minerals though they may not all have been a controlled asbestos mineral. Only two the fibers counted represented large bundles of tremolite-actinolite asbestos. The remaining fiber count, were predominantly tremolite-actinolite fibers that had diameters of less than a micrometer.

SAMPLE	TOTAL COUNT	FIBER COUNT	% ASBESTOS COUNT*
070-01	842	8	0.95%
070-02	887	7	0.79%
070-03	812	8	0.98%

* Percent by weight is less than a tenth of this value

The exposure to the dust from handling these materials would be enriched in fibrous minerals, predominantly tremolite-actinolite asbestos.

CONCLUSION

The samples all contain tremolite-actinolite asbestos as the dominant fibrous mineral. The amount of asbestos present in the sample is well below one percent by weight. Exposure to the dust from protracted handling of this material would be expected to exceed OSHA exposure limits.

Thank you for this opportunity to be of service. If I can provide any further assistance please contact me.

Signed: _____

E. R. Crutcher, Consultant

EXHIBIT Z

1 MCGARVEY, HEBERLING, SULLIVAN & MCGARVEY, P.C.
 2 745 South Main
 3 Kalispell, MT 59901
 Telephone: (406) 752-5566

4 LIEFF, CABRASER, HEIMANN & BERNSTEIN, LLP
 5 Embarcadero Center West, 30th Floor
 6 275 Battery Street
 San Francisco, CA 94111
 Telephone: (415) 956-1000

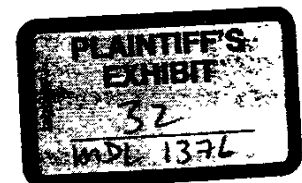
7 NESS MOTLEY LOADHOLT RICHARDSON & POOL
 8 28 Bridgeside Blvd.
 P.O. Box 1792
 Mount Pleasant, SC 29465
 Telephone: (843) 216-9000

9 LUKINS & ANNIS, P.S.
 10 1600 Washington Trust Financial Center
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 11 Spokane, WA 99201-0466
 Telephone: (509) 455-9555

12 COHEN, MILSTEIN, HAUSFELD & TOLL, P.L.L.C.
 13 999 Third Ave., Suite 3600
 Seattle, WA 98104
 14 Telephone: (206) 521-0080

UNITED STATES DISTRICT COURT
 DISTRICT OF MONTANA
 MISSOULA DIVISION

17	PAUL PRICE, JOHN PREBIL and MARGERY)	
18	PREBIL, on behalf of themselves and all others)	
19	similarly situated,)	No. CV 00-71-M-DWM
20)	
21	Plaintiffs,)	AFFIDAVIT OF RICHARD HATFIELD
22)	IN SUPPORT OF PLAINTIFFS'
23	vs.)	APPLICATION FOR PRELIMINARY
24)	INJUNCTION AND EMERGENCY
25	W.R. GRACE & COMPANY (a Delaware)	NOTICE TO CLASS MEMBERS
26	corporation); W.R. GRACE & COMPANY-CONN)	
	(a Connecticut corporation); W.R. GRACE & CO.,)	
	a/k/a GRACE, an association of business entities;)	
	SEALED AIR CORPORATION (a Delaware)	
	corporation),)	
)	
	Defendants)	
)	



1 STATE OF GEORGIA)
2) ss.:
3 COUNTY OF FORSYTH)

4 1. Richard Hatfield being first duly sworn, deposes and states as follows:

5 2. I have personal knowledge of the facts stated herein, except were otherwise stated:

6 3. I have obtained a Bachelor of Science degree in geology from North Carolina State
7 University.

8 4. I am currently the senior asbestos consultant at Materials Analytical Services
9 (hereinafter "MAS"). Previously, I was employed by Law Engineering as Assistant Vice President
10 and Senior Corporate Consultant from December 1987 to August 1996. Prior to that, I was Director
11 of Services for McCrone Environmental Services for five (5) years.

12 5. I am currently a member of the Environmental Information Association, and have
13 served on the United States EPA Peer Review Committee and the ASTM D-22 Committee.

14 6. For more than twenty (20) years, I have consulted on issues regarding asbestos and
15 buildings, beginning around 1979 when I was a Technical Advisor to the U.S. EPA regarding its
16 "Asbestos in Schools" program.

17 7. During the last twenty (20) years, I have been involved in the assessment and testing
18 of asbestos in buildings, and have inspected hundreds of buildings for asbestos. During this time,
19 I have served as an expert witness in litigation involving asbestos in buildings, and have testified for
20 both building owners and asbestos manufacturers.

21 8. I am certified by the Environmental Protection Agency to inspect buildings for
22 asbestos-contained materials and to manage asbestos in buildings. I am also certified by NIOSH to
23 sample and evaluate airborne asbestos dust.

24 9. I have taught courses required by EPA regarding asbestos and have given numerous
25 talks at asbestos conferences regarding the assessment and evaluation of asbestos-containing
26 materials in buildings. I am appending my curriculum vitae as Attachment A.

1 10. I am familiar with testing performed in July 1993 by MAS in which MAS found
2 asbestos in bags of Grace's Zonolite Attic Insulation. In its report dated July 26, 1993, MAS
3 concluded that tremolite-actinolite was found to be associated with the vermiculite and as free
4 respirable fibers in the fine dust. I am appending the report as Attachment B.

5 11. In February 2000, I was hired to make a determination as to whether Grace's
6 vermiculite attic insulation in homes contained asbestos, and to conduct an assessment of whether
7 Grace's attic insulation in homes can release asbestos fibers and create an asbestos contamination
8 problem.

9 12. I collected and arranged to have analyzed bulk samples of raw vermiculite ore and
10 vermiculite that had been milled by W.R. Grace. I also collected and arranged to have analyzed bulk
11 samples of attic insulation from eleven different locations in Libby, Montana. All of these samples
12 were analyzed by Materials Analytical Services and found to contain tremolite\actinolite asbestos.
13 The results of analysis are contained in Attachment C.

14 13. In addition to collecting bulk samples, I collected and arranged to have analyzed
15 samples of settled dust in three homes with W.R. Grace's Zonolite Attic Insulation in Libby,
16 Montana. Specifically, these dust samples were collected from the homes of Walter Mason, Shelly
17 Spencer and Diane Walker. Notably, all of these samples were analyzed by Materials Analytical
18 Services and found to contain tremolite\actinolite and anthophyllite asbestos fibers. The asbestos
19 dust concentrations ranged from approximately 400,000 asbestos structures per square foot to
20 approximately 41,000,000 asbestos structures per square foot. The results of analysis are set forth
21 in Attachment D. Based on my experience and the results of this testing, it is my opinion that W.R.
22 Grace's Zonolite Attic Insulation has released asbestos fibers, which has settled on surfaces and
23 created a potential asbestos contamination hazard.

24 14. I also conducted testing to simulate renovation activities that ordinarily take
25 place in homes with W.R. Grace's Zonolite Attic Insulation. I was placed in contact with
26 Marco Barbanti, who owns rental properties with Grace's Zonolite Attic Insulation in S

1 Spokane, Washington. Mr. Barbanti explained to me in detail renovation work he had
2 previously conducted and future renovation work he planned to conduct at his rental property
3 located at 1301 West Mallon. I was placed in contact with Mr. Barbanti's handyman, Ed
4 O'Conner, who explained the procedure that he used in the past and intended to use to install
5 a bathroom heater fan in the attic of Mr. Barbanti's house. In order to access an area on top
6 of the ceiling, Mr. O'Conner would use a tin pan to scoop the vermiculite from the top of the
7 ceiling in the area where the heater fan unit was to be installed and transfer the vermiculite
8 to an area of the attic out of the way of the work activities. He then would sweep up the
9 residue dust and debris from the surface of the ceiling and placed it to the side. Until recently
10 Mr. Barbanti and his handyman were unaware of any potential asbestos hazard that W.R.
11 Grace's Zonolite Attic Insulation posed and therefore did not take any safety precautions in
12 conducting this work in the past.

13 15. The work as described above was conducted in Mr. Barbanti's attic to allow for the
14 installation of a ceiling mounted heater fan unit. The attic area was isolated from the balance of the
15 house. While the attic work was performed personal and area air samples were collected. The work
16 activities were also videotaped. A copy of the videotape is appended as Attachment E. The video
17 depicts the work as it was conducted. The lighting for the videotape was a spot light. A spotlight
18 used in this manner in a dark area created what is commonly referred to as the "Tyndall light
19 phenomena". With the aid of this type of lighting, one can see dust particulate smaller than what
20 would normally be visible with the naked eye. Most people have seen the "Tyndall light
21 phenomena" when sun light streams through a window in a darkened room and dust particulates
22 become suddenly visible. During the work activities of moving the vermiculite attic insulation air
23 samples were collected on the workers and in the attic space.

24 16. The air samples were analyzed by Materials Analytical Services and the results are
25 appended as Attachment F. The levels ranged from 6.96 str/cc to 12.48 str/cc. These levels greatly
26

1 exceed the EPA clearance level of 0.01 f/cc, the OSHA permissible exposure limit of 0.1 f/cc, and
2 OSHA's peak exposure limit of 1 f/cc in a 30 minute period.

3 17. I have reviewed reports of simulated testing of Zonolite Attic Insulation conducted
4 by Grace in the 1970s. In particular, I have reviewed Grace's testing dated March 11, 1976, July 11,
5 1976, April 27, 1979 and March 1980. The elevated asbestos airborne concentrations during the
6 testing that I performed simulating renovation activities are consistent with the elevated
7 concentrations that Grace achieved during installation.

8 18. I also collected a sample of the fine dust from the top of the ceiling below the
9 vermiculite insulation. The dust sample was analyzed by Materials Analytical Services. The results
10 of analysis indicate that the asbestos dust concentration on the surface was approximately 47,000,000
11 structures per square foot. (See Attachment G). In my opinion, the results demonstrate that the fine
12 dust from the vermiculite insulation is contaminated with asbestos. Further, in my opinion
13 disturbance of this dust will result in elevated concentrations of asbestos in the air.

14 19. Based on my testing conducted in Libby, Montana and Spokane, Washington, it is
15 my opinion to a reasonable degree of scientific certainty that Grace's Zonolite Attic Insulation
16 contains asbestos. It is also my opinion to a reasonable degree of scientific certainty that disturbance
17 of Grace's Zonolite Attic Insulation involving ordinary renovation activities, such as removing or
18 moving the vermiculite material and sweeping it up, results in dangerously high airborne
19 concentrations of asbestos fibers exceeding the EPA clearance level of 0.01 str/cc, the OSHA PEL
20 of 0.1 f/cc, and OSHA's peak or execution limit of 1 f/cc.

21 20. The OSHA permissible exposure limit ("PEL") of 0.1 f/cc, is applicable to
22 contractors working in the home. As an occupational standard, the OSHA Regulation was intended
23 to apply to healthy workers who are familiar with asbestos and the necessary precautions to minimize
24 exposure. The OSHA Regulation was not intended to apply to family members, including children
25 involved in ordinary household activities, including maintenance, repair and remodeling activities
26 in the home.

23. Based on my experience and my testing, it is my opinion that homeowners need to be warned about: 1) the presence of asbestos in Zonolite Attic Insulation; 2) the potential hazards associated with disturbing Zonolite Attic Insulation and asbestos dust from the insulation; 3) the need for strict safety precautions when working around this material; and 4) the need for work that disturbs the insulation and dust from the insulation to be conducted by persons specifically trained to work around asbestos. 5) if the disturbance of the Zonolite attic insulation cannot be controlled it should be removed prior to conducting additional work activities which would disturb the insulation.

Richard L. Hatfield
RICHARD L. HATFIELD

Margie A. Cobb
Notary Public in and for the State of Georgia
Residing at _____
My commission expires: _____

**AFFIDAVIT OF RICHARD HATFIELD IN SUPPORT OF
PLAINTIFFS' APPLICATION FOR PRELIMINARY INJUNCTION
AND EMERGENCY NOTICE TO CLASS MEMBERS - 6**